

Media Analytics

Image Processing / Machine Vision / Face Recognition

My career achievements include on-time design, implementation and delivery of award winning 2D/3D/imaging/video software for: mobile devices, drivers, cross-platform SDKs, desktop apps, and scalable online services.

My technical focus is centered on harvesting context/shape/object/behavioral information from 2D images, video frames, and 3D scenes – creating new algorithms, as well as leveraging open source and 3rd party technologies where applicable.

My CPU/GPU innovations include new perceptual color spaces, fast noise reduction, robust/optimized skin-tone detection/masking/segmentation, presence/attention detection, faster and more accurate face detection, light source detection, attenuation of highlight/shadows for improved object recognition, sorting images/videos by visual context and similarity, auto-aligning/cropping/selection/decimation of photo albums.

LinkedIn References: <http://www.linkedin.com/ppl/webprofile?id=2048259#recommendations>

Employment History

- **GRAPHCOMP – Founder and Principal Consultant** **1982-Present**
Founder of **Graphcomp** and its subsidiary **Grafman Productions** - dedicated to creating 2D/3D/video media analytics, software and services for Fortune 500 companies and municipalities in the U.S., Canada and New Zealand – including **McDonnell Douglas, Data General, AT&T, DEC, Unisys, eBay/PayPal, and Blue Lava Technologies**. Led 3 employees + contractors.

Developed 2D/3D components for CAD systems, GPU-based machine vision, and iPhone/iPad apps involving face detection, OpenGL/ES, 3D accelerometers, and multi-touch gestures. Active open source contributor: POGL, ImageMagick, FFmpeg.

- **APPLE – Senior Face Recognition Researcher** **2009-2010**
Responsible for driving face recognition and related machine vision technologies for various groups at Apple.

Brought together several hardware and software groups at Apple to develop, evaluate and improve face/presence detection/matching/clustering technologies. Unified face recognition technologies between multiple Apple desktop products. Conceived/implemented and established a new Apple benchmarking standard for evaluating face recognition technologies for accuracy and speed performance.

Conceived/developed 9 machine vision patent applications submitted by Apple.

Robert M. Free

<http://www.graphcomp.com/bfree>
bfree@graphcomp.com

15732 Los Gatos Blvd, #536
Los Gatos, CA 95032
408-812-1952

- **APPSCIO – CTO** **2007-2008**
Service startup for Actionable Video Intelligence.

We correlated face recognition with speaker/voice recognition to significantly improve people recognition/tracking for certain government agencies.
- **FABRIK – VPE / Technologist** **2005-2007**
Founding member of a tech startup, which created a new embedded media appliance - with just 4 engineers (self included) within 4 months. OEM'd by Maxtor/Seagate as 'Fusion' in Q3 2006.

I created new image/video analytics for optimized visual searches based on context and shape similarity.
- **ADOBE – Sr. Engineering Manager / Sr. Computer Scientist** **2002-2005**
Led 20+ software engineers, in San Jose and Seattle, plus dotted-line reports in India.

Established an Adobe-wide infrastructure to support “*mix&match suites*” – used for Adobe’s **Creative Suites** and **Video Collections** products. Designed/implemented a scalable image server architecture for an Adobe photo-sharing seed project.
- **CLUB PHOTO – Vice President of Engineering** **2000-2002**
Led **Club Photo** to become the first profitable online print fulfillment company, during a time of industry consolidation in 2001.

Led teams in San Jose and Austin to develop e-commerce services, print lab systems, and desktop/handheld products. Developed new auto-enhancement imaging filters.
- **PHOTOLOFT – Vice President of Production and Engineering** **1999-2000**
Transitioned **PhotoLoft**, the first publicly traded photo-sharing company, from a dot-com advertising model – to a scalable B2B photo-e-commerce Application Service Provider model – resulting in eventual acquisition by **Canon USA**.

Led 20+ engineers, web designers, QA, support and IS. Developed cropping and compositing technologies for online/printed photo-cards/books.
- **ISD CORP – Director of Engineering for Embedded Video Appliances** **1998-1999**
- **LIVE PICTURE – Director-level Manager for 3D Applications** **1997-1998**
- **NETMANAGE – Senior Ecommerce Systems and Crypto Engineer** **1995-1996**
- **BORLAND INTERACTIVE – Senior R&D Engineer for OBEX** **1994-1995**
- **NOVELL / STI – Cross-platform Graphics and Networking Architect** **1990-1994**
- **GRAPHCOMP – Founder & Principal Consultant for 2D/3D/Imaging** **1982-Present**
- **MCDONNELL DOUGLAS – Lead Engineer for 2D/3D CAD Technologies** **1984-1986**
- **DATA GENERAL / SYSCOMP – Systems Engineer for 3D Technologies** **1983-1984**

Cross-platform development: Linux, Windows/DOS, MacOS/iOS

Languages: C/C++, Objective-C, Object-oriented Perl, x86 assembler, JavaScript/ActionScript

2D/3D Imaging/Video: OpenGL/ARB/Cg/GLSL, OpenCV